Guest blogger Alan Trounson — July's stem cell research highlights

Posted: July 21, 2011

Created: 21/07/2011 - 09:13

Each month CIRM President Alan Trounson gives his perspective on recently published papers he thinks will be valuable in moving the field of stem cell research forward. This month's report, along with an archive of past reports, is available on the CIRM website.

In the past month one paper struck me as especially important because it has the potential to alleviate a particularly nasty disability. Radiation therapy can buy time for patients with brain tumors, but the collateral damage it does to surrounding healthy tissue can cause problems with learning and memory, that grow worse over time. It is believed that this decline occurs because the radiation destroys the adult neural stem cells that should be repairing damage. When this happens to a child and you watch them decline mentally at an age when they should be advancing, it can be heart-breaking. That is why I chose to highlight a paper in which injected neural stem cells were able to repair radiation damage in rats and bring back their sensory abilities towards normal. (You can read our blog entry on this research here.)

This month's literature continued to show progress in using stem cells to reproduce complex tissues made of multiple cell types, something that has always been a touchstone goal for regenerative medicine. One research team was able to grow functional small intestine on a biodegradable scaffold in mice (which we blog about here). Another was able to produce mucus glands with both the inner and outer structures that make up a normal gland (blogged about here).

With heart disease being a leading cause of disability it was good to see advances in heart tissue repair this month from two very different angles. One research team developed a much more efficient way to drive embryonic stem cells to become heart muscle cells, which is the type of cell needed to repair tissue damaged or weakened from a heart attack or congestive heart failure. The other team discovered a compound that can be injected like a drug and that can activate the few adult heart stem cells we all have to be better at repairing tissue (here's our blog about that work).

I hope you find the somewhat longer descriptions in my full report interesting.

Tags: Trounson